REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Applicant has amended the Abstract and claims in a manner believed to overcome the objections raised by the Examiner.

Claims 1-18 stand rejected under 35 U.S.C.§102 as being anticipated by Saitoh, No. 6,038,486. In addition, claims 12-18 stand rejected under 35 U.S.C.§103 as being obvious over Saitoh in view of Donhauser, No. 5,541,810. Applicant respectfully traverses these rejections and requests reconsideration of the claims.

The present invention relates to a process module for a processing station for performing a predetermined function. The present invention also relates to a processing station comprising at least one such process module.

Processing stations are generally known. Such processing stations are normally part of a modular processing assembly and testing system for the processing, assembly, machining and testing of products. Such processing stations are for example used for assembling mobile phones. Each processing station within the assembly system has at least one given function to be carried out on the product. For example, the function can be the connection of two parts of the mobile phone housing. Another function may be the marking of a housing part with a laser, for example writing a serial number on the housing part. These functions are automatically performed in the processing stations. In addition, an assembly system also comprises for example manual processing stations, where functions are manually performed, as well as pure transfer stations which convey pallets carrying the products.

Applicant of the present invention has developed processing stations which are able to receive several (between one and four) so called process modules. These process modules are separate devices for carrying out a separate function. Hence, for example one process module comprises a laser system for marking a product and another process module comprises an automatic system for screwing.

For controlling these functions, the processing station comprises a basis controller on which the respective software runs. The software controls the operation of the respective process modules and coordinates the operation of the whole processing station with the other processing stations of the assembly system.

In addition to the basis controller, each process module also comprises a controller which operates in a way comparable to a client of a client-server system. Hence, the controller of the process module communicates with the basis controller.

In prior art systems, the software controlling the process modules is transferred to the basis controller and installed by an operator using for example a laptop computer connected to the basis controller of the processing station.

Although this procedure is relatively fast and simple in practice, further simplification of the installation of process modules is desirable. In particular, it is highly desirable to simplify the installation process so that it can be readily performed by unskilled personnel, i.e. the process modules should have a so called "plug and work" functionality.

This goal is fulfilled by a process module the controller of which comprises a program data administrator unit which coordinates the transfer of the program

associated with process module out of a program data memory into the program control unit.

In other words, the process module carries the program to be run on the basis controller or at least carries the information where the program is stored. This enables the process module to be plugged in without the necessity of a skilled operator to transfer and install any software. In short, the program data administrator unit "substitutes" for the skilled operator and supplies all necessary information concerning the transfer of the program associated with the process module.

According to one embodiment of the invention, the program data administrator unit contains the information which is necessary for the basis controller to find the memory location of the program and to then transfer the program out of the memory into the program control unit. The program data administrator unit in this case plays a passive role.

In an alternative embodiment of the invention, the program data administrator unit actively retrieves the desired program out of the program data memory and transfers it to the program control unit.

U.S. Patent No. 6,038,486 to Saitoh relates to a method of operating, controlling, monitoring and analyzing data of control devices used in manufacturing devices or equipment in a factory automation system. The factory automation survey system is made up of an inspection machine that checks manufactured products, a control device that exercises control over the various types of machinery and devices including manufacturing devices, a personal computer, an FA-server provided with common disk and a LAN that connects these components to one another. The FA-server system is

further connected by way of the internet to a personal computer, the personal computer of the maker of the machinery equipment, and an arbitrary personal computer.

As is pointed out in column 2 of the Saitoh patent, the inspection machine includes a file-generating program for file-transfer and an inspection machine data management file operation converting program. The purpose of the file generating-program is to transfer files to the FA-server which have been automatically generated. In particular, the inspection program of the inspection machine generates a raw file of inspection results and transfers the file to the FA-server by FTP. The FA-server converts the raw file to a WWW file by means of an automatic conversion program for WWW documents, and transmits the converted WWW file with a manual file to a personal computer by means of WWW delivery program HTTP. The user of the personal computer alters the content of the file, transfers the raw file to the inspection machine by FTP through the FA-server and the inspection machine reads the file and operates accordingly.

In summary, the inspection program generates a file containing inspection results and transfers this file to the FA-server. The FA-server in turn converts this file into a different format allowing any user to access this file via common internet browsers.

Thus, the entire Saitoh patent deals with the function of the inspection machine and the technical solution to accessing inspection machine data via the internet.

The Saitoh patent is, however, silent with respect to the control devices that exercise control over the various types of machinery and devices, including manufacturing devices, equipment for conveying materials, etc.

These control devices would be comparable to the processing station or at least the basis controller of the present invention. Hence, the Saitoh patent fails to disclose any information concerning the way in which the software for controlling the process modules is transferred to the program control unit.

In short, the Saitoh '486 patent does not teach or suggest providing the control device with a program data administrator unit to coordinate the transfer of the program associated with the process module, out of a program data memory into the program control unit.

Rather, one of ordinary skill in the art can only assume from the disclosure in Saitoh that the software necessary for operating the control device or the inspection machine must be transferred and installed manually by an operator.

The Saitoh reference merely discloses that the inspection machine generates a file containing raw data and transfers this file (a data file, not a program file) to the FA-server for converting this raw data into a different data format so that users may access the data via internet browsers.

It is therefore respectfully submitted that Saitoh neither anticipates nor renders obvious the subject matter of the present invention as defined in the claims.

U.S. Patent No. 5,541,810 to Donhauser discloses an expandable automation system including both a programmable controller that is capable of stand-alone operation, and a modular programmable controller. The modular programmable controller consists of a central processing unit and expansion modules. The expansion modules of the modular programmable controller can be used as an expansion unit for the programmable controller that is capable of stand-alone operation.

However, this document does not disclose that the expansion modules carry software which is designated to be transferred to the processing unit to control the operation of the expansion module.

Hence, this document does not contain any teaching that could lead one of ordinary skill in the art to the solution taught by the present invention, even when this document is considered in combination with U.S. 6,038,486 (Saitoh).

Accordingly, the present invention is believed to be patentably distinguishable over the cited art of record in this case. Favorable reconsideration is respectfully solicited.

Respectfully submitted,

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